

Claims

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[c1] 1.A permanent magnet type three-phase AC rotary electric machine including a permanent magnet element having a number of permanent magnet poles and a coil winding element having a number of slots, each of said three phases being connected in a line current circuit and being comprised of a parallel circuit formed by connecting a plurality of series circuits in parallel, said coil winding element comprising cores of each of said series circuits combined such that electromotive voltages or counter electromotive voltages generated across opposite ends of said plurality of series circuits forming each phase are substantially the same based on symmetry of arrangement of said permanent magnets and said coils, thereby preventing generation of a circulating current in said parallel circuit.

[c2] 2.A permanent magnet type three-phase AC rotary electric machine as set forth in claim 1 wherein the permanent magnet element has n-number of permanent magnet poles and the coil winding element has m-number slots and the value of m is at least 6.

[c3] 3.A permanent magnet type three-phase AC rotary electric machine as set forth in claim 1 wherein the phases are connected in a Y configuration.

[c4] 4.A permanent magnet type three-phase AC rotary electric machine as set forth in claim 3 wherein the permanent magnet element has n-number of permanent magnet poles and the coil winding element has m-number slots and the value of m is at least 6.

[c5] 5.A permanent magnet type three-phase AC rotary electric machine as set forth in claim 1 wherein the phases are connected in a Δ configuration.

[c6] 6.A permanent magnet type three-phase AC rotary electric machine as set forth in claim 5 wherein the permanent magnet element has n-number of permanent magnet poles and the coil winding element has m-number slots and the value of m is at least 6.

[c7] 7.A permanent magnet type three-phase AC rotary electric machine as set forth in claim 2 wherein the number n of poles and said number m of slots have a

common devisor.

[c8] 8.A permanent magnet type three-phase AC rotary electric machine as set forth in claim 2 wherein the number m of slots is a multiple of 3 represented as 3M, M is at least 4, M coils corresponding to one phase are divided into L sets each comprising M/L coils connected in series.

[c9] 9.A permanent magnet type three-phase AC rotary electric machine as set forth in claim 2 wherein the number n of poles and the number m of slots satisfy the following relations, respectively;

$$n = 2N, m = 3M$$

wherein N and M are integers, and also satisfy the following equation;

$$2m/3 < n < 4m/3.$$

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